

SILICA GLASS CRUCIBLE

ABSTRACT

A silica glass crucible is disclosed comprising an aluminum-doped inner wall
5 layer. An aluminum-doped layer can be formed on an outer wall portion. The inner
layer is non-homogeneously doped with aluminum to promote silica crystallization.
The non-homogeneous silica grain mixture contains aluminum and can be
aluminum-doped and aluminum-free silica grains or, alternatively, aluminum-coated
coarse quartz grain.

10 The crucible is made by introducing into a rotating crucible mold bulk silica
grain to form a bulky wall including a bottom wall and a side wall. After heating the
interior of the mold to fuse the bulk silica grains, an inner silica grain, doped with
aluminum, is introduced. The heat at least partially melts the inner silica grain,
allowing it to fuse to the wall to form an inner layer. The crucible is cooled, and the
15 fused silica grains form nuclei of crystalline silica within the inner layer.